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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,886

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Frank B. Stamps

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3745

MAIL DATE

DELIVERY MODE

03/30/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,886	Applicant(s) STAMPS ET AL.	
	Examiner Christopher Verdier	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26 is/are allowed.
- 6) ☒ Claim(s) 1-17 and 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Applicant's Amendment dated March 11, 2009 has been carefully considered but is non-persuasive. With regard to Applicant's argument that the abstract need not be on a separate sheet, because this is a U.S National stage application, this argument has been found to be persuasive. Applicant is thanked for pointing this out. The specification has been amended to correct the informality therein, and to provide proper antecedent basis for the subject matter of claims 4 and 12. Correction of these matters is noted with appreciation.

With regard to Jensen 2,774,553, Applicant has argued that Jensen does not teach or show the use of deformable elements to provide the damper with a spring rate. This argument is not persuasive, because the claims do not recite deformable elements. The features upon which applicant relies (i.e. deformable elements) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). However, Jensen discloses springs adjacent 148 and 150, which are deformable elements. The damper of Jensen has a spring rate, because it includes a piston 108 with valve means (either elements 148, 150, and the springs associated therewith, or valve 158) that allows for selective switching between first and second spring rates. Overpressure in the chambers 110, 112, as well as control of valve 158 allows for selective switching between first and second spring rates. With regard to Applicant's argument that the damper of Jensen is a pure fluid damper, which resists motion only with the restricted flow of incompressible fluid through 146, 152 and provides only a damping rate, the examiner respectfully disagrees for the reasons set forth above. Additionally,

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the claims do not include any proviso that would exclude the damper of Jensen from anticipating claims 1, 4-9, 12-17, and 23.

Applicant's arguments that Jensen does not show or teach the use of a damper having a spring rate and does not show or teach the use of a damper being selectively switchable between at least two spring rates and associated damping rates are not persuasive for the reasons set forth above.

Amended independent claims 1, 9, 17, and 23 define over Buivid 2,754,937, but not for the reasons argued by Applicant. Buivid does not disclose that the piston has fluid passages therethrough and valve means for controlling the flow of fluid through at least one of the passages of the piston. However, the amendments to claims 1, 9, 17, and 23 to define over Buivid 2,754,937 are appreciated.

Applicant has argued concerning the rejection of claims 22 and 24 under 35 U.S.C. 102(b) as being anticipated by Larsen 2,155,427 that Larsen does not teach the use of a blade strap that encircles the flapping hinge and a bearing of the associated lead/lag hinge, but that members 14 are shown and described as having forked outer ends, with a pivot 20 extending through apertures formed in each forked end. Applicant has argued that the claimed invention comprises a unitary, loop-type blade strap that encircles both the flapping hinge and the elastomeric lead/lag bearing, and that Larsen does not disclose that each blade strap is a unitary loop. These arguments are respectfully disagreed with, because Larsen discloses a blade strap 14

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in the form of a unitary joint that encircles each flapping hinge 13 and a bearing 26-28 of the associated lead/lag hinge 20, with the blade strap oriented to extend out of the plane of rotation of the assembly (near 17), and with each blade strap being a unitary loop.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-9, 12-17, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Jensen 2,774,553. Disclosed is an aircraft hub comprising a central member 16, plural blade attachment members 72/74 adapted for attaching propotor blades 54 to the central member, the blade attachment members being pivotally attached to the central member for pivoting about a pivot axis 60 generally normal to a plane of rotation of the blades, the pivoting allowing for in-plane motion of the blades relative to the central member, a damper 106 operatively connected to each blade attachment member for damping the in-plane motion of the associated blade, each damper being selectively switchable between at least first and second spring rates via valve 154 and element 160 and a damping rate associated with each spring rate. The damper has a housing 106 and a piston 108 movably carried within the housing, the piston having unnumbered fluid passages (adjacent 148 and 150) therethrough and valve means (either elements 148, 150, and the springs associated therewith, or valve 158) for controlling the flow of fluid through at least

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one of the passages, the valve means allowing for selective switching between at least the first and second spring rate. Overpressure in the chambers 110, 112, as well as control of valve 158 allows for selective switching between first and second spring rates. A pin 60 is provided, pivotally connecting each blade attachment member to the central member, the pivot axis of each blade being coaxial with the associated pin, the damper being selectively switched from the first spring rate to the second spring rate upon landing of the aircraft, the second spring rate being stiffer than the first spring rate, each damper being selectively switched from the second spring rate to the first spring rate upon takeoff of the aircraft, the first spring rate being softer than the second spring rate. The damper is operatively connected to an inner end of each blade attachment member 72/74.

Claims 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Larsen 2,155,427. Disclosed is an assembly comprising a central member 9, plural blade attachment members 19, plural unnumbered blades, a flapping hinge 13 connecting an inner portion of each blade attachment member to the central member, each flapping hinge having an axis generally parallel to a plane of rotation of the assembly and providing for out of plane motion of the corresponding blade attachment member, a lead/lag hinge 20 connecting each blade to the blade attachment member, each lead/lag hinge having an axis generally normal to the plane of rotation of the assembly and providing for in plane motion of the blade relative to the blade attachment member, the axes being non-coincident, a blade strap 14 in the form of a unitary joint that encircles each flapping hinge and a bearing 26-28 of the associated lead/lag hinge, the blade strap oriented to extend out of the plane of rotation of the assembly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-3 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen 2,774,553 in view of Noehren 4,244,677. Jensen 2,774,553 discloses a hub substantially as claimed as set forth above, having pivot pins 60 that connect each blade attachment member to the central member, but does not disclose that the pivot pins are formed as elastomeric bearings such that the pivot axis of each blade attachment member passes through a focus of the associated bearing.

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Noehren shows a helicopter rotor having blades 22 attached to a central member 12, via elastomeric bearings 38, 40 such that the pivot axis of each blade attachment member passes through a focus of the associated bearing, for the purpose of controlling pitch-flap coupling which occurs during flapping of the rotor blades.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the pivot pins of the hub of Jensen such that they are formed as elastomeric bearings such that the pivot axis of each blade attachment member passes through a focus of the associated bearing, as taught by Noehren, for the purpose of controlling pitch-flap coupling which occurs during flapping of the rotor blades.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen 2,155,427 in view of either (Buivid 2,754,937 or Jensen 2,774,553). Larsen discloses a rotor assembly substantially as claimed as set forth above, but does not disclose dampers operatively connected to each blade attachment member for damping in plane motion of each associated blade, each damper being selectively switchable between at least first and second spring rates.

Buivid shows an aircraft hub having dampers 30 operatively connected to each blade attachment member 32 for damping in plane motion of each associated blade 22, each damper being selectively switchable between at least first and second spring rates, for the purpose of allowing adjustment of damping rates during different conditions.

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Jensen shows an aircraft hub having dampers 106 operatively connected to each blade attachment member 72/74 for damping in plane motion of each associated blade 54, each damper being selectively switchable between at least first and second spring rates, for the purpose of allowing adjustment of damping rates during different conditions.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the rotor assembly of Larsen with dampers operatively connected to each blade attachment member for damping in plane motion of each associated blade, each damper being selectively switchable between at least first and second spring rates, as taught by either Buivid or Jensen, for the purpose of allowing adjustment of damping rates during different conditions.

Allowable Subject Matter

Claim 26 is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Verdier/
Primary Examiner, Art Unit 3745

Christopher Verdier
Primary Examiner
Art Unit 3745